NJDOT Bureau of Research
QUARTERLY PROGRESS REPORT

Project Title:	Cost of Transporting People in New Jersey – Phase 2
RFP NUMBER:	NJDOT RESEARCH PROJECT MANAGER: Abbas Hirya
TASK ORDER NUMBER::	PRINCIPAL INVESTIGATOR: Kaan Ozbay
Project Starting Date: 1/1/05 **Original** Project Ending Date:12/31/05 **Modified Completion Date:**	Period Starting Date:1/1/05 Period Ending Date:3/31/05

Task	% of Total	% of Task this quarter	% of Task to date	% of Total Complete
Literature Search	5%%			
1. Kickoff Meeting	5%	5%		
2. Identify Cost Models that need to be Improved and Data Availability	5%%			
3. Develop Guidelines and Mechanisms for a More Efficient Cost Database Structure	10%			
4. Enhance / Update Cost Models	30%			
5. Integration of Improved / Updated Cost Models with the Current Travel Demand Models Used by the NJDOT	30%			
6. Technology Transfer	10%			
Final Report	5%			
TOTAL	100%			[Column Sum]

Project Objectives:

1. An effective and robust cost modeling tool will be developed. This tool is usefulfor NJDOT planners to analyze and evaluate various scenarios and policy options. In addition, the tool will be Windows-GIS based, user-friendly and easy to use.
2. The GIS based cost modeling tool will be compatible with the existing travel demand models to assure the robustness of the model results. The novelty of the proposed cost modeling tool is in its integration with the existing travel demand models. This feature provides a dynamic approach in estimaing the effect of the policy options on travel demand patterns.
3. Guidelines and mechanisms for a more efficient cost database structure will be developed because it is highly desirable to have a database structure that can be used to dynamically update the cost functions with new data, when available.
4. The costs models developed in the first phase of the project will be improved. The available data for each cost category will be determined. Since the duration of the project is not long enough to collect brand new data that is not readily available, the selection of cost categories to be updated will be based on the data availability.

Project Abstract:

Cost of Transporting People in New Jersey was concerned with the development of Full Marginal Cost (FMC) model specific to New Jersey. Basically, the study attempted to provide an answer to the following question: "What is the cost of an additional trip in NJ highway network?" Methodological and experimental steps followed to answer this question in Phase 1 of this project can be summarized as follows:

1. Four (4) highway transportation cost categories were determined. These were:
2. User costs (Vehicle operating, congestion, accident),
3. Infrastructure costs
4. Environmental (Air pollution and noise) costs.

Marginal cost functions of each cost category were estimated using the available local and national data. Vehicle operating, accident and infrastructure cost functions were developed using NJ specific data, whereas congestion, and environmental cost functions were developed using the available national data. One-Route Marginal Cost (ORMC) methodology was developed and coded using *Avenue* computer language. *Avenue* is an object-oriented programming language used to create user interface for **Arc-View GIS** software. ORMC methodology estimates the marginal cost of a trip between a selected origin-destination (O-D) pair along the shortest route. Estimated ORMC values for selected O-D pairs are classified based on trip distance, time of the day, highway functional type and urbanization degree. These results are presented in the Phase 1 Project report

The Phase 1 of this project was a preliminary step towards developing a "dynamic" tool for policy makers and analysts to estimate the FMC of transporting people in NJ. The methodology behind this dynamic tool differs from the traditional static approaches that have been commonly used by the government agencies. Proposed tool will be capable of capturing the relationship between the various cost categories at various demand levels for a number of roadway infrastructure properties, as they change over time. This dynamic aspect of the proposed model will allow the policy makers to determine the prevailing costs under various scenarios, and will be extremely useful in understanding the effects of different policy decisions. It should be noted that the cost functions developed specifically for this project are also useful for other applications such estimating maintenance costs and construction costs of a roadway, estimating congestion and environmental costs.

1. Progress this quarter by task:

We had our kick-off meeting. We decided to have at least two follow-up meetings.

- A meeting to be held with NJDOT personnel who are knowledgeable about the availability of the required data.
- The compatibility of ArcView GIS and with TP+, Cube and the PPSuite models of the NJ network will be discussed. Thus, another meeting will be arranged with the companies that are currently involved in these NJDOT.

2. Proposed activities for next quarter by task

1. Identify the availability of data within NJDOT.
2. Understand the capabilities of existing planning tools at NJDOT.
3.

3. List of deliverables provided in this quarter by task (product date)

4. Progress on Implementation and Training Activities

As of 2/06/2004

5. Problems/Proposed Solutions

Total Project Budget	
Modified Contract Amount:	
Total Project Expenditure to date	
% of Total Project Budget Expended	%